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CHEMICAL AND ISOTOPIC CHARACTERISTICS OF ICE FROM AN ICE-WEDGE IN SEYMOUR ISLAND (ISLA VCOM. MARAMBIO), ANTARCTIC PENINSULA REGION (III) — DISSOLUTION EFFECT OF SALTS — (ABSTRACT)

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Even in Antarctica the permafrost and the distinctive ground features are seen in the regions free of ice cover. Seymour Island (Isla Vcom. Marambio) is one of the places free of ice cover. Many ice-wedges and ice-wedge casts were found. In a previous paper K. KATO *et al.* (Proc. NIPR Symp. Antarct. Geosci., **4**, 181, 1990; **5**, 164, 1991) clarified very specific chemical and isotopic characteristics of ice from the ice-wedge.

Concentrations and compositions of chemical species and oxygen isotopic compositions ($\delta^{18}O$) in the ice body vary over an unexpectedly wide range and are greatly different between the upper and lower parts, even from the same ice body. It is noteworthy that the ices of very high concentrations of Na^+ and SO_4^{2-} in lower half of the ice body show fairly large $\delta^{18}O$ values, whereas the ices of high Ca^{2+} concentration in its upper half show small $\delta^{18}O$ values. Especially, ice in the depth interval between 120-140 cm shows a large $\delta^{18}O$ value very close to that of sea water.

In order to interpret their chemical and isotopic characteristics, we examined the extent of effect of the salts, which are mainly Mg-rich $CaCO_3$ and $CaSO_4$ as found on the ground surface and in the active layer and Na_2SO_4 in the high salt layer in the Tertiary basement rocks found by magnetoterullic sounding. This is because H_2O of hydration in these salts is believed higher in $\delta^{18}O$ than the water molecules (H_2O) in which the salts formed.

However, the experimental results of dissolution of the salts in the active layer and the Tertiary basement rocks show much smaller effect of the salts on the chemical and isotopic compositions of the ice-wedge ices.

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